

# SERIES H58

**Dynapar™ brand**

## Shafted Encoder

### Key Features

- Industry Standard 58mm Mounting
- Multiple Connection Options
- Rugged Design with Long-Life Bearings



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Optical

**Resolution:** 1 to 2540 PPR (pulses/revolution)

**Accuracy:** (Worst case any edge to any other edge)  $\leq 1024$  PPR (metal disk):  $\pm 7.5$  arc-min.  
 $> 1024$  PPR (glass disk):  $\pm 2.5$  arc-min.

**Format:** Two channel quadrature (AB) with optional Index (Z) and complementary outputs

**Phase Sense:** A leads B for CCW shaft rotation as viewed from the shaft end of the encoder

**Quadrature Phasing:**  $90^\circ \pm 22.5^\circ$  electrical

**Symmetry:**  $180^\circ \pm 18^\circ$  electrical

**Index:**  $180^\circ \pm 18^\circ$  electrical (gated with B low)

**Waveforms:** Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

### ELECTRICAL

#### Input Power:

5 to 26 VDC at 80 mA max., not including output loads

#### Outputs:

7272 Push-Pull: 40mA, sink or source

7272 Differential Line Driver: 40 mA, sink or source

4469 Differential Line Driver: 100mA, sink or source

**Frequency Response:** 100 kHz min. (index)  
 75 kHz min. for extended temperature range)

**Noise Immunity:** Tested to EN61326-1

**Electrical Immunity:** Reverse polarity and short circuit protected

**Termination:** MS Connector, M12 Connector, M23 Connector, Cable Exit

### Mating Connector:

7 pin, style MS3106A-16S-1S (MCN-N5);

10 pin, style MS3106A-18-1S (MCN-N6)

12 pin style M23, CW (MCN-C1)

12 pin style M23, CCW (MCN-C2)

5 pin, style M12: Cable with connector available

8 pin, style M12: Cable with connector available

### MECHANICAL

**Shaft Sizes:** 6 mm, 10 mm

**Shaft Loading:** (at 6 mm from encoder face)

Resolutions  $\leq 1024$  PPR: 356 N radial, axial

Resolutions  $> 1024$  PPR: 178 N radial, axial

#### Shaft Speed:

Resolutions  $\leq 1024$  PPR: 10,000 RPM max.

Resolutions  $> 1024$  PPR: 5,000 RPM max.

**Starting Torque:** (max at 25 °C)

without shaft seal: 0.007 N-m;

with shaft seal: 0.014 N-m

**Moment of Inertia:** 21.2 g-cm<sup>2</sup>

**Housing and Cover:** Aluminum

**Shaft Material:** Stainless Steel

**Disc Material:** Glass

**Weight:** 283 g. (10 oz.) max.

### ENVIRONMENTAL

#### Operating Temperature:

**Standard:** 0 to +70 °C;

**Extended:** 0 to +85 °C

**Storage Temperature:** -40 to +90 °C

**Shock:** 50 G's for 11 milliseconds duration

**Vibration:** 5 to 2000 Hz at 20 G's

**Humidity:** Up to 98% (non-condensing)

**Enclosure Rating:** NEMA12/IP54 (dirt tight, splashproof); NEMA4/IP66 (dust proof, wash-down) when ordered with shaft seal and either MS connector or watertight cable exit

**Ordering Information**

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: PPR	Code 3: Pilot, Face	Code 4: Shaft	Code 5: Shaft Seal	Code 6: Electrical	Code 7: Termination	Code 8: Connector	
<b>H58</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Ordering Information</b>								
<b>H58</b> Bidirectional with Index (Channels A, B and Z)	<b>0001</b>	<b>0600</b>	<b>0</b> (3) M4 @ 42mm BC, no Pilot	<b>0</b> 6mm Dia. Shaft	<b>0</b> no Shaft Seal	<b>0</b> 5-26V in, 5-26V Push-Pull out available when Code 7 is 2 thru B, E or F:  <b>1</b> 5-26V in, 5-26V Differential Line Driver out (7272) <b>2</b> 5-26V in, 5V Differential Line Driver out (7272) <b>3</b> 5-26V in, 5V Differential Line Driver out (4469) <b>4</b> 5-15V in, 5-15V Differential Line Driver out (4469)  <b>A</b> Same as "0" with extend. temp range <b>B</b> Same as "1" with extend. temp range <b>C</b> Same as "2" with extend. temp range	<b>0</b> 7 Pin Conn, End Mount <b>1</b> 7 Pin Conn, Side Mount <b>2</b> 10 Pin Conn, End Mount <b>3</b> 10 Pin Conn, Side Mount <b>4</b> 12 Pin CCW Conn, End Mount <b>5</b> 12 Pin CCW Conn, Side Mount <b>6</b> 12 Pin CW Conn, End Mount <b>7</b> 12 Pin CW Conn, Side Mount <b>C</b> 5 pin M12 Conn, End Mount <b>D</b> 5 pin M12 Conn, Side Mount <b>E</b> 8 pin M12 Conn, End Mount <b>F</b> 8 pin M12 Conn, Side Mount available when Code 5 is 1: <b>8</b> 1m Sealed Cbl, End Exit <b>9</b> 1m Sealed Cbl, Side Exit <b>A</b> 3m Sealed Cbl, End Exit <b>B</b> 3m Sealed Cbl, Side Exit	<b>0</b> no Mating Connector <b>1</b> 7 Pin Mating Connector <b>2</b> 10 Pin Mating Connector <b>3</b> 12 Pin CCW Mating Connector <b>4</b> 12 Pin CW Mating Connector
	<b>0010</b>	<b>0800</b>	<b>1</b> (3) M3 @ 48mm BC, 36mm Dia. Pilot	<b>1</b> 10mm Dia. Shaft	<b>1</b> Shaft Seal			
	<b>0012</b>	<b>1000</b>						
	<b>0050</b>	<b>1024</b>						
	<b>0060</b>	<b>1200</b>						
	<b>0086</b>	<b>1250</b>						
	<b>0100</b>	<b>1270</b>						
	<b>0120</b>	<b>1500</b>						
	<b>0125</b>	<b>1600</b>						
	<b>0200</b>	<b>1800</b>						
<b>0240</b>	<b>1968</b>							
<b>0250</b>	<b>2000</b>							
<b>0300</b>	<b>2048</b>							
<b>0360</b>	<b>2400</b>							
<b>0400</b>	<b>2500</b>							
<b>0500</b>	<b>2540</b>							
<b>0512</b>								

**Cable Assemblies with MS Connector\***

- 108595-XXXX** 7 Pin MS, Cable Assy. For Use with Single Ended w/Index Outputs
- 1400635-XXXX** 10 Pin MS, Cable Assy. For Use with Differential Line Driver with Index Outputs
- 108615-XXXX** 12 Pin CCW (if used) MS, Cable Assy. For Use with Differential Line Driver with Index Outputs
- 108616-XXXX** 12 Pin CW (if used) MS, Cable Assy. For Use with Differential Line Driver with Index Outputs

**Cable Assemblies with M12 Connector\***

- 112859-XXXX** 5 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-XXXX** 8 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-0015** 8 Pin M12, Cable Assy. For Use with Differential Line Driver Outputs

**\*Note:** Standard cable length is 10 feet but may be ordered in any length in 5 foot increments. For example, for a 20 foot cable, replace XXXX with -0020.

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## ELECTRICAL CONNECTIONS

### 7, 10 & 12 Pin MS Connectors and Cables - Code 7 =0 to 7

Connector & mate/accessory cable assembly pin numbers and wire color information is provided here for reference. Models with direct cable exit carry the color coding as shown in the right hand column.

Table 1								
Encoder Function	Cable # 108595-XXXX 7 Pin Single Ended		** Cable #1400635XXXX 10 Pin Dif Line Driver with Index		Cable # 108615-XXXX 12 Pin CCW		Cable # 108616-XXXX 12 Pin CW	
	Pin	Wire Color Code	Pin	Wire Color Code	Pin	Wire Color Code	Pin	Wire Color Code
Signal A	A	BRN	A	BRN	5	BRN	3	BRN
Signal B	B	ORG	B	ORG	8	ORG	4	ORG
Signal Z*	C	YEL	C	YEL	3	YEL	7	YEL
Power +V	D	RED	D	RED	12	RED	2	RED
N/C	E	—	E	—	7	—	—	—
Com	F	BLK	F	BLK	10	BLK	1	BLK
Case	G	GRN	G	GRN	9	—	—	—
Signal $\bar{A}$	—	—	H	BRN/WHT	6	BRN/WHT	5	BRN/WHT
Signal $\bar{B}$	—	—	I	ORG/WHT	1	ORG/WHT	6	ORG/WHT
Signal $\bar{Z}$ *	—	—	J	YEL/WHT	4	YEL/WHT	8	YEL/WHT
5V Sense	—	—	—	—	2	GRN	—	—
0V Sense	—	—	—	—	11	BLK/WHT	—	—

### 5 & 8 Pin M12 Accessory Cables when Code 7 = C to F

Connector pin numbers and cable assembly wire color information is provided here for reference.

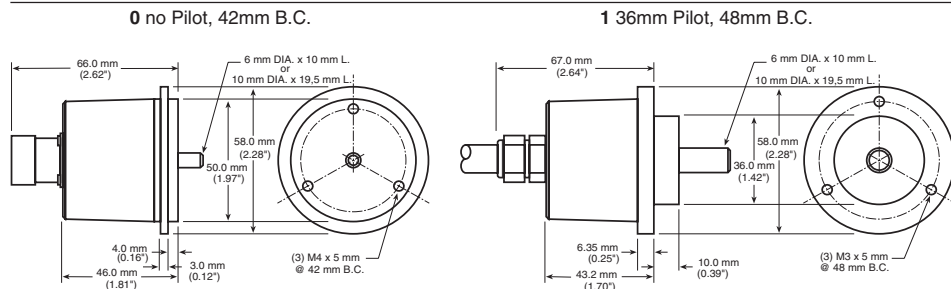
Table 2						
Encoder Function	Cable # 112859-XXXX 5 Pin Single Ended		Cable # 112860-XXXX 8 Pin Single Ended		Cable # 112860-XXXX 8 Pin Differential	
	Pin	Wire Color Code	Pin	Wire Color Code	Pin	Wire Color Code
Signal A	4	BLK	1	BRN	1	BRN
Signal B	2	WHT	4	ORG	4	ORG
Signal Z*	5	GRY	6	YEL	6	YEL
Power +V	1	BRN	2	RED	2	RED
Com	3	BLU	7	BLK	7	BLK
Signal $\bar{A}$	—	—	—	—	3	BRN/WHT
Signal $\bar{B}$	—	—	—	—	5	ORG/WHT
Signal $\bar{Z}$ *	—	—	—	—	8	YEL/WHT

#### NOTES:

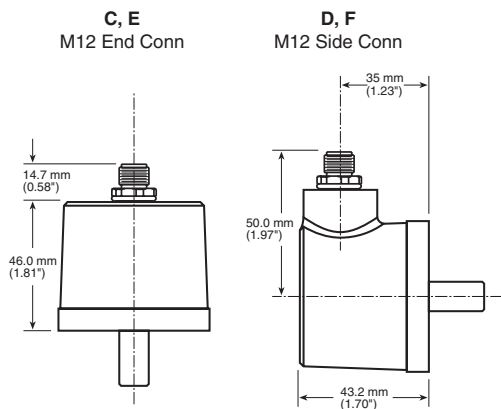
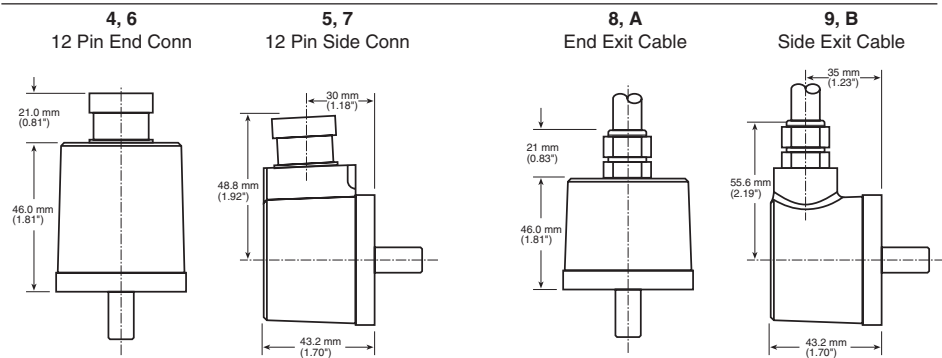
- 1) Cable Configuration (**Table 1**): PVC jacket, 105 °C rated, overall foil shield; 3 twisted pairs 26 AWG (output signals), plus 2 twisted pairs 24 AWG (input power)
- 2) Cable Configuration (**Table 2**): PVC jacket, 105 °C rated, overall foil shield; 24 AWG conductors, minimum
- 3) Standard cable length is 10 feet but may be ordered in any length in 5 foot increments. For example, for a 20 foot cable, replace -XXXX with -0020
- 4) \*Index not provided on all models. See ordering information.
- 5) \*\*For watertight applications, use NEMA4 10 pin cable & connector 1400635-XXXX.
- 6) "MS" Type mating connectors and pre-build cables are rated NEMA 12
- 7) "M12" Cable assemblies are rated IP67

**DIMENSIONS**

**Code 3: Pilot, Face Mounts**



**Code 7: Terminations**



**Code 7: Terminations**

**4, 5 CCW      6, 7 CW**  
(when looking at encoder)

